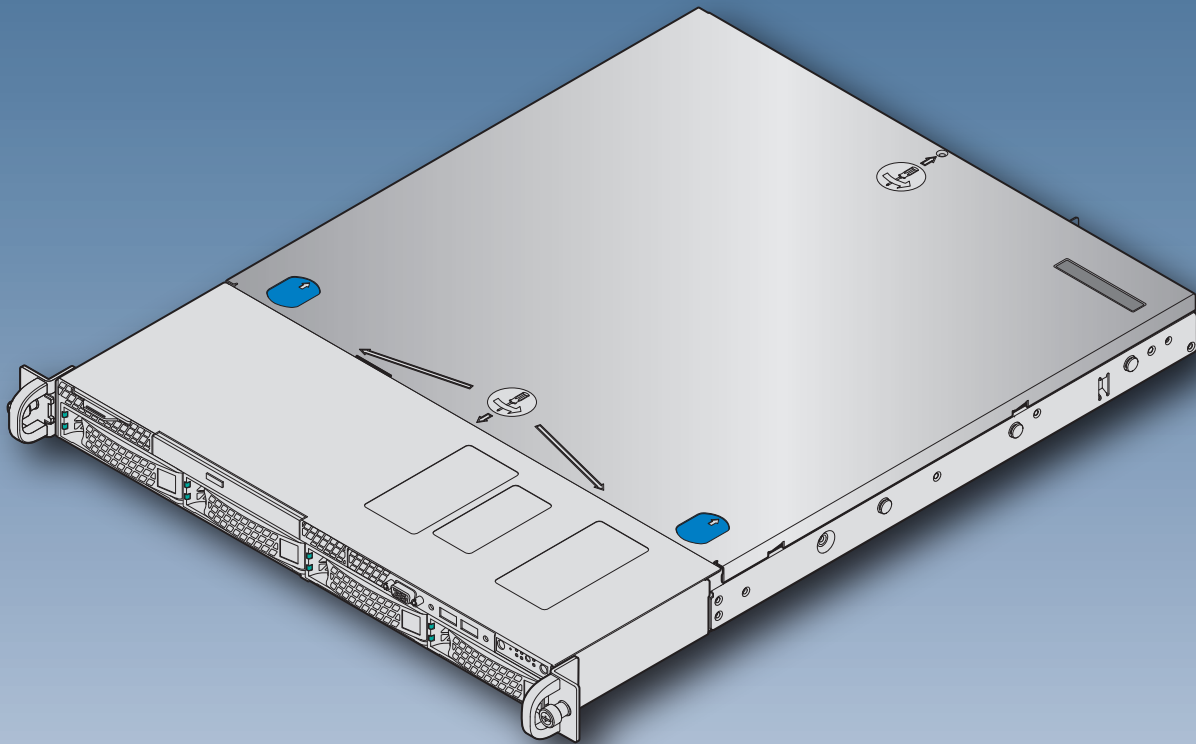


# Intel® Server System R1000EP Family Quick Installation User's Guide

Thank you for buying an Intel® Server System. The following information will help you assemble your Intel® Server System and install components.

If you are not familiar with ESD [Electrostatic Discharge] procedures used during system integration, see the complete ESD procedures described in your *Service Guide*.

This guide and other supporting documents are located on the web at:  
<http://www.intel.com/support>.



\* 3.5" hard drive bay system as shown



G62623-001

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## Warning



Read all caution and safety statements in this document before performing any of the instructions. Also see the *Intel® Server Board and Server Chassis Safety Information* document at: <http://www.intel.com/support/motherboards/server/sb/cs-010770.htm> for complete safety information.

## Warning



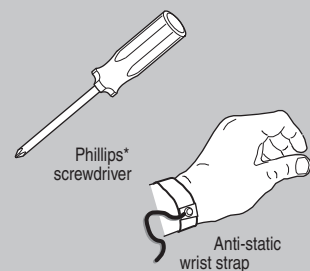
Installation and service of this product to be performed only by qualified service personnel to avoid risk of injury from electrical shock or energy hazard.

## Caution



Observe normal ESD [Electrostatic Discharge] procedures during system integration to avoid possible damage to server board and/or other components.

## Tools Required



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## Thermal Operation and Configuration Requirements

To keep the system operating within supported maximum thermal limits, the system must meet the following operating and configuration guidelines:

- Ambient in-let temperature cannot exceed 35° C and should not remain at this maximum level for long periods of time. Doing so may affect long term reliability of the system.
- The CPU-1 processor + CPU heatsink must be installed first. The CPU-2 heatsink must be installed at all times, with or without a processor installed.

### • **Memory Slot population requirements:**

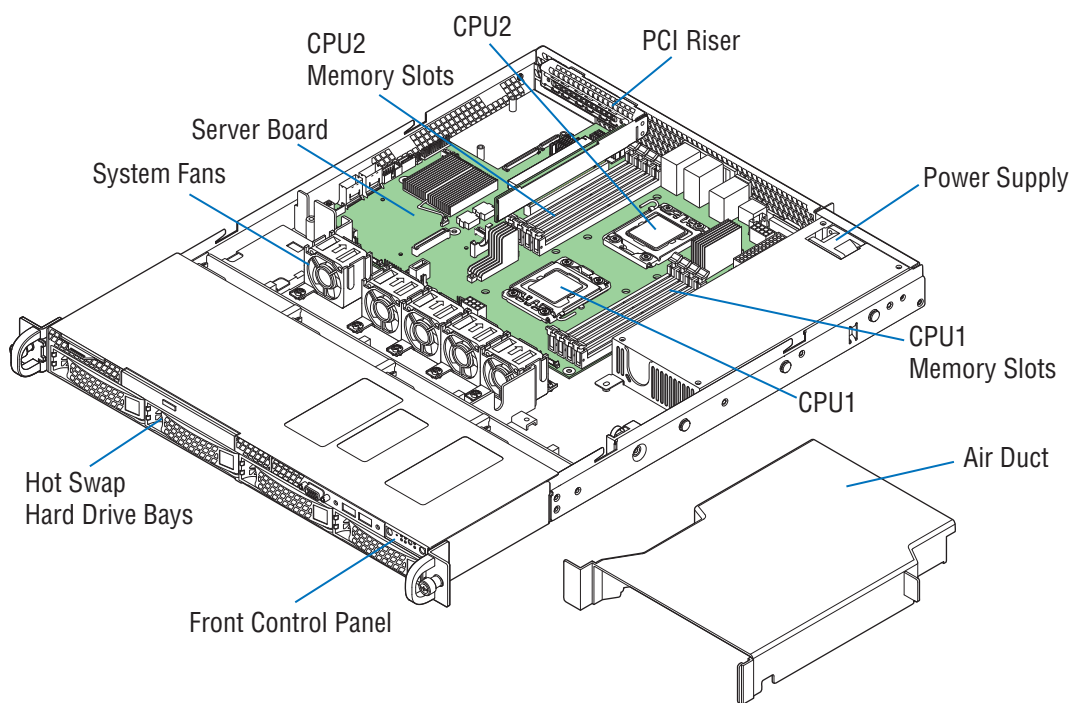
NOTE: Specified memory slots either can be populated with a DIMM or supplied DIMM Blank. Memory population rules apply when installing DIMMs.

- **DIMM Population Rules on CPU-1**  
Install DIMMs in order; Channels A, B, and C. Start with 1<sup>st</sup> DIMM slot (blue) on each channel, then slot 2.
- **DIMM Population Rules on CPU-2**  
Install DIMMs in order; Channels D, E, and F. Start with 1<sup>st</sup> DIMM slot (blue) on each channel, then slot 2.
- All hard drive bays must be populated. Hard drive carriers either can be populated with a hard drive or supplied drive blank.
- The air duct must be installed at all times.
- The system top-cover must be installed at all times.

# System Overview

## Intel® Server System R1000EP Family

### System Features and Components



\* 3.5" Hard Drive Bay system as shown

#### **Useful Information:**

- The SCU1 (4-7) port requires an Intel® RAID C600 Upgrade Key installed to be functional.

# General Installation Process

The installation instructions in this section are for common components of Intel® Server System R1000EP family.

## Minimum Hardware Requirements

To avoid integration difficulties and possible board damage, your system must meet the following minimum requirements:

- **Processor:**  
Intel® Xeon® processor E5-2400 product family.
- **Memory Type:**  
Minimum of one 512MB DDR3 800/1066/1333 MHz UDIMM or one 1GB DDR3 800/1066/1333 MHz RDIMM.
- **Hard Disk Drives:** SATA

For a complete list of compatible processors, heatsinks, and memory, see <http://www.intel.com/support>.

## 1 Preparing the System

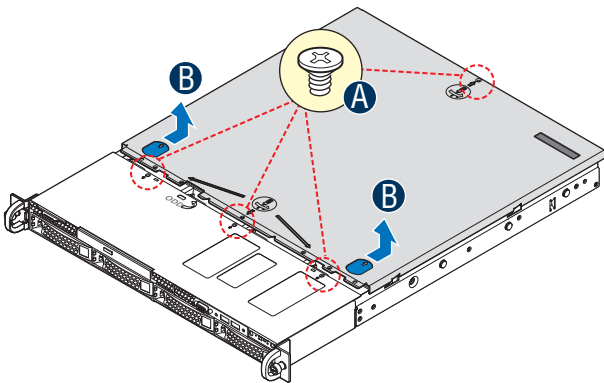
Observe normal ESD (Electrostatic Discharge) procedures.



Place your Intel® Server System on a flat anti-static surface to perform the following integration procedures. Observe ESD procedures before reaching inside to make server board connections or install components.

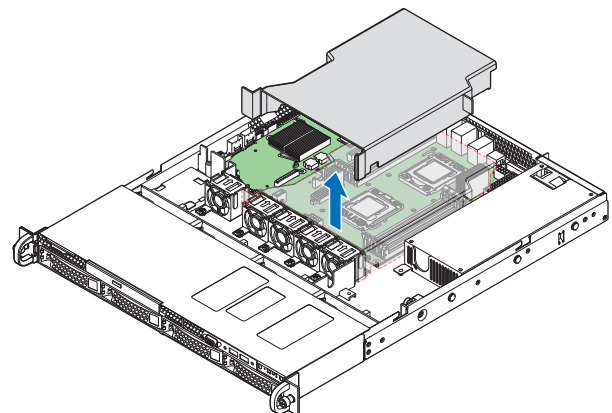
## 2 Remove the Top Cover

- Remove the four screws.
- Slide cover back and lift upward.



## 3 Remove the Air Duct

Remove the air duct by lifting straight up.



## 4 Remove Processor Heatsink(s)

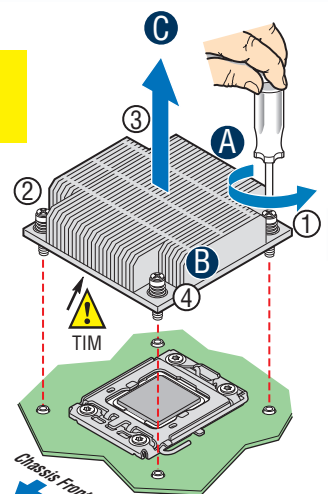
### IMPORTANT!

Before proceeding further, check your Intel® Server System for disconnected or loose cables and components that may have occurred during shipping.

**CAUTION:** The heatsink has thermal interface material (TIM) on the bottom side of it. Use caution so that you do not damage the thermal interface material. Use gloves to avoid sharp edges.

The heatsink is attached to the server board/processor socket with captive fasteners. Using a #2 Phillips\* screwdriver, loosen the four screws located on the heatsink corners in a diagonal manner using the following procedure:

- Using a #2 Phillips\* screwdriver, start with screw 1 and loosen it by giving it two rotations and stop. (IMPORTANT: Do not fully loosen.)
- Proceed to screw 2 and loosen it by giving it two rotations and stop. Similarly, loosen screws 3 and 4.  
Repeat steps A and B by giving each screw two rotations each time until all screws are loosened.
- Lift the heatsink straight up.



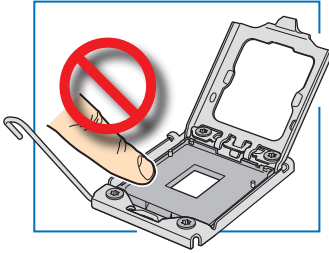
# General Installation Process

## 5

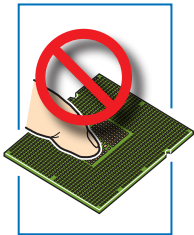
### Install the Processor(s)

#### Cautions:

- 1. When opening a socket, **DO NOT TOUCH** the golden socket wires.

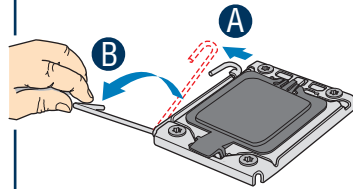


- 2. When unpacking a processor, hold only by the edges to avoid touching the golden contact wires.



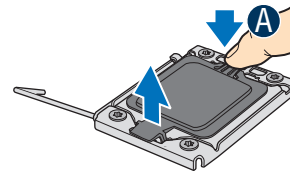
#### A. Open the Socket Lever

- A** Push the lever handle down and away from the socket to release it.
- B** Rotate the lever open all the way.

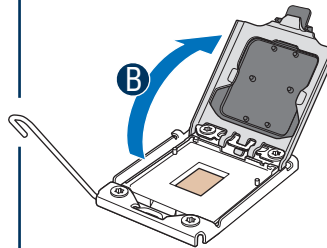


#### B. Open the Load Plate

- A** Push the rear tab with your finger tip to bring the front end of the load plate up slightly.



- B** Open the load plate as shown.



#### C. Remove the Processor Protective Cover

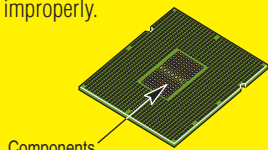
- A** Take the processor out of the box and remove the protective shipping cover.



### Install the Processor(s) ... *continued*

#### D. Install the Processor

- CAUTION:** The bottom side of the processor has components that may damage the socket wires if installed improperly.

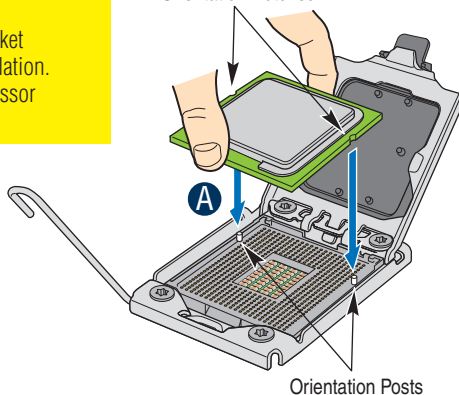


Processor must align correctly with the socket opening before installation. **DO NOT DROP** processor into the socket!

- A** Orient the processor with the socket so that the orientation notches on the processor align with the two orientation posts on the socket.

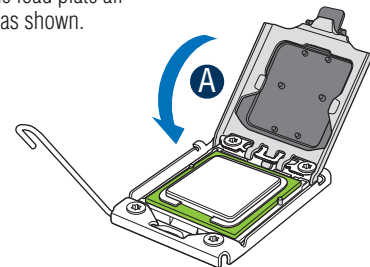
*Install the processor as shown.*

Orientation Notches

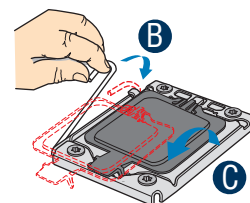


#### E. Close Load Plate and Socket Lever

- A** Close the load plate all the way as shown.



- B** With your finger, push down on the load plate as shown.
- C** Close the socket lever and ensure that the load plate tab engages under the socket lever when fully closed.



# General Installation Process

## 6

### Install Processor Heatsink(s)

**CAUTION:** The heatsink has thermal interface material (TIM) on the bottom side of it. Use caution so that you do not damage the thermal interface material. Use gloves to avoid sharp edges.

**CAUTION:** Do not over-tighten fasteners.

**A** Remove the protective film on the TIM if present.

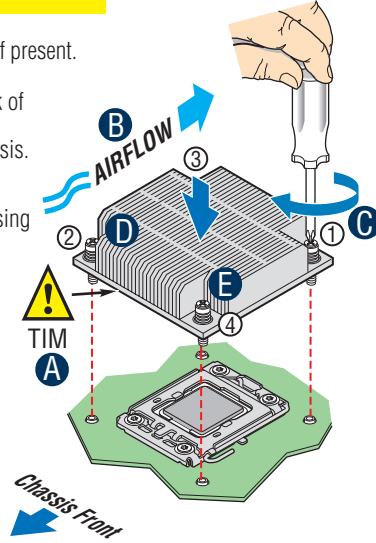
**B** Align heatsink fins to the front and back of the chassis for correct airflow. Airflow goes from front-to-back of chassis.

Each heatsink has four captive fasteners and should be tightened in a diagonal manner using the following procedure:

**C** Using a #2 Phillips\* screwdriver, start with screw 1 and engage screw threads by giving it two rotations and stop. (Do not fully tighten.)

**D** Proceed to screw 2 and engage screw threads by giving it two rotations and stop. Similarly, engage screws 3 and 4.

**E** Repeat steps **C** and **D** by giving each screw two rotations each time until each screw is lightly tightened up to a maximum of 8 inch-lbs torque.



NOTE: Heatsink styles may vary.

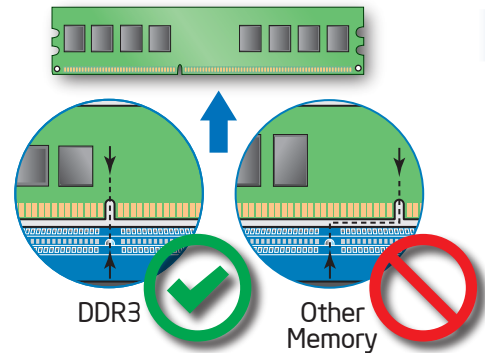
## 7

### Install Memory Modules

#### DDR3 DIMM Memory Identification:

**CAUTION:** Observe normal ESD (ElectroStatic Discharge) procedures to avoid possible damage to system components.

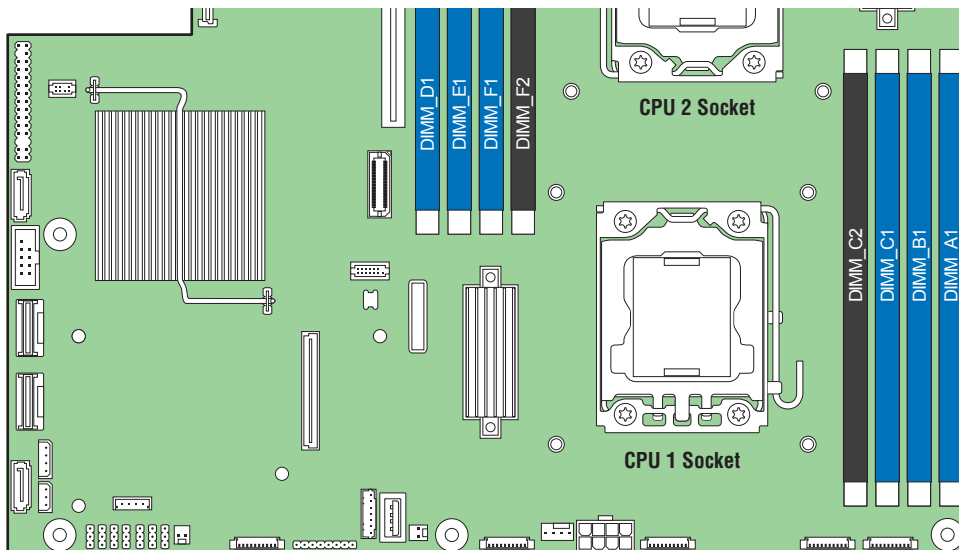
DIMM notch and socket bump must align as shown below.



### Install Memory Modules ... Continued

#### Memory Configurations and Population Order:

#### Intel® Server Board S2400EP



For best performance, a minimum of four DIMMs per CPU is recommended, populated in the blue slot of each memory channel.

In a single-processor configuration, always populate A1 DIMM first.

In a dual-processor configuration, always populate A1 DIMM first for CPU 1 and D1 DIMM first for CPU2.

NOTE: For additional memory configurations, see the Service Guide on the Intel® Server Deployment & Management DVD that accompanied your Intel® Server System, or go to <http://www.intel.com/support>.

Memory sizing and configuration is supported only for qualified DIMMs approved by Intel. For a list of supported memory, go to <http://serverconfigurator.intel.com>.



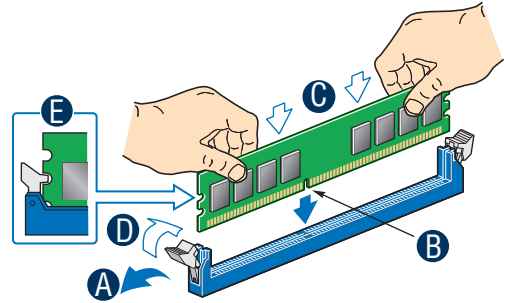
# General Installation Process

## Install Memory Modules ... Continued

To Install DIMMs:

- A** Open both DIMM socket levers.
- B** Note location of alignment notch.
- C** Insert DIMM making sure the connector edge of the DIMM aligns correctly with the slot.
- D** Push down firmly on the DIMM until it snaps into place and both levers close.
- E** IMPORTANT! Visually check that each latch is fully closed and correctly engaged with each DIMM edge slot.

**CAUTION:** Avoid touching contacts when handling or installing DIMMs.

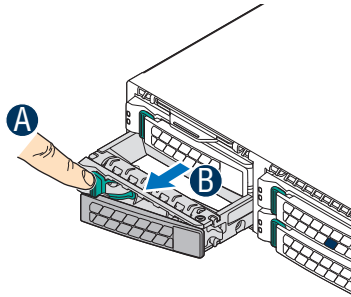


## 8

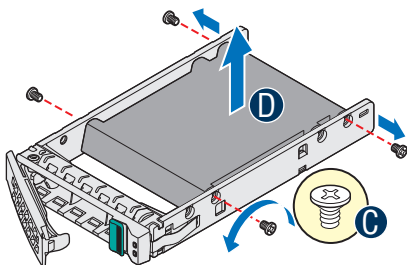
## Install Hard Drives

### 2.5" Hard Drive Carrier (For system with 2.5" hard drive bay only)

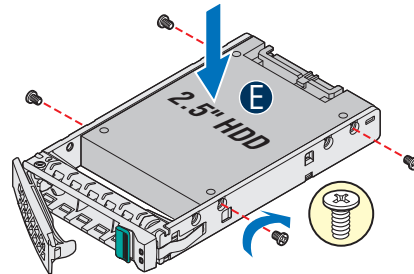
- A** Remove the drive carrier by pressing the **green** latch to unlock.
- B** Pull out the black lever and slide the carrier out.



- C** Remove the four screws securing the plastic drive blank from the 2.5" HDD carrier.
- D** Disengage the plastic drive blank from the HDD carrier. Remove the plastic drive blank from the 2.5" HDD carrier.

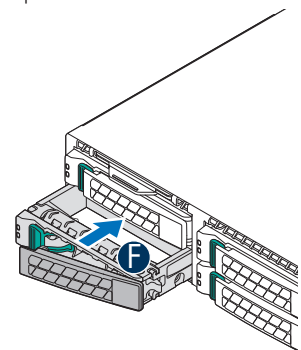


- E** Install the hard disk drive using the four screws as shown. Make Sure the connector end of the drive matches the backplane connector.

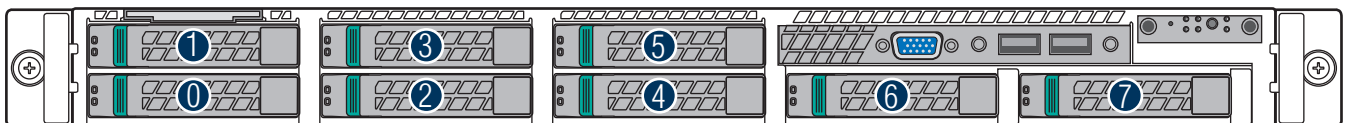


- F** With the lever open, insert the hard disk drive assembly into the chassis, then push in the lever to lock it into place.

**CAUTION:** If you don't install all drives, empty drive bays must be occupied by carriers with plastic drive blank provided to maintain proper system cooling.



### Hard Drive Numbering Diagram



Drive 0 Primary

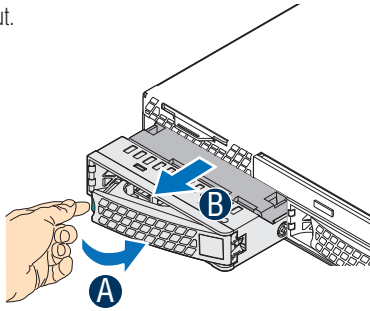
8 x 2.5" hard drive bay as shown

# General Installation Process

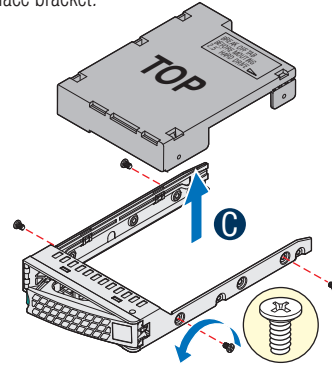
## Install Hard Drives ... Continued

### 3.5" Hard Drive Carrier (For system with 3.5" hard drive bay only)

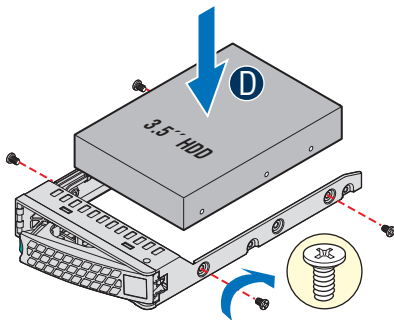
- A** Remove the drive carrier by pressing the **green** button and opening the lever.
- B** Slide the carrier out.



- C** Remove the four screws securing the HDD interface bracket and remove the HDD interface bracket.

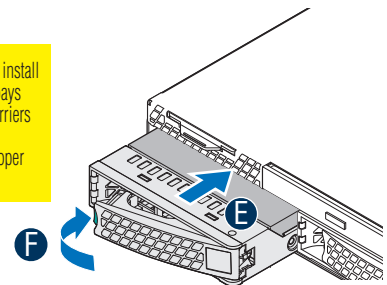


- D** Install the hard disk drive using the same four screws as shown. Make sure the connector end of the drive matches the backplane connector.



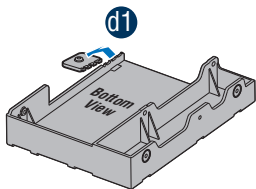
- E** With the lever open, insert the hard disk drive assembly into the chassis.
- F** Push in the lever to lock it into place.

**CAUTION:** If you don't install all drives, empty drive bays must be occupied by carriers with plastic drive blank provided to maintain proper system cooling.

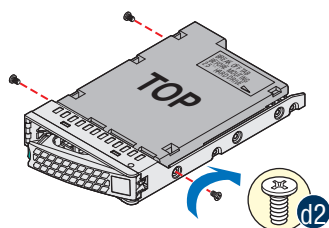


### Install 2.5" Hard Drive as option:

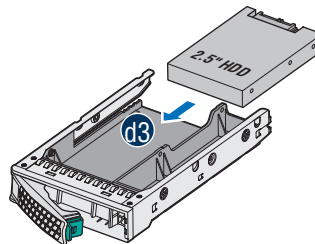
- d1** Break off the tab on the HDD interface bracket.



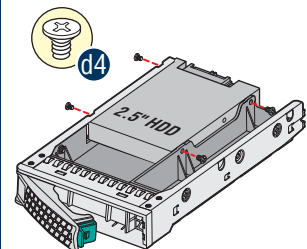
- d2** Install the HDD interface bracket from top. Secure the bracket with three screws as shown.



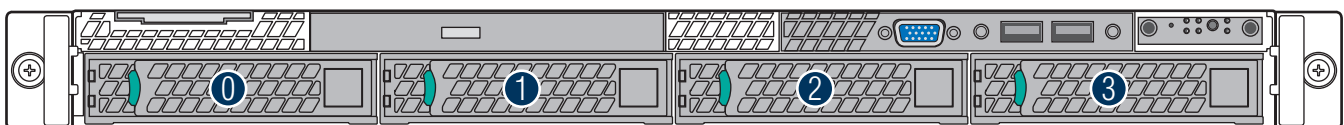
- d3** Slide the 2.5" HDD into the bracket to align the screw holes with the right and left rail.



- d4** Secure the hard disk drive using the four screws for 2.5" HDD.



### Hard Drive Numbering Diagram



Drive 0 Primary

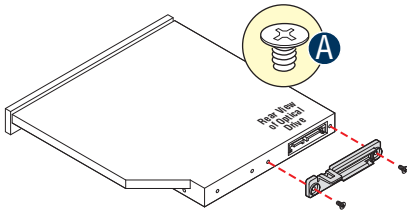
4 x 3.5" hard drive bay as shown

# General Installation Process

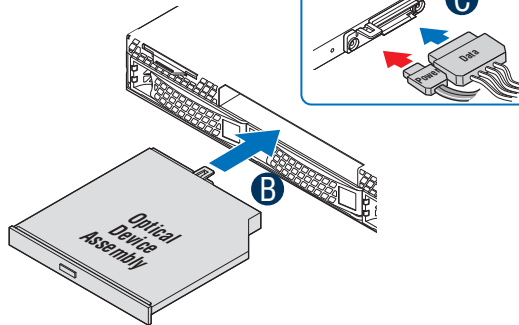
## 9

### Install Optical Drive

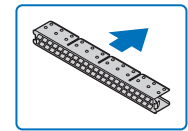
- A** Install the plastic guide onto the back of the drive and attach with two screws as shown.



- B** Insert the optical drive into chassis opening and push all the way until it stops.  
**C** Connect the cables as shown.



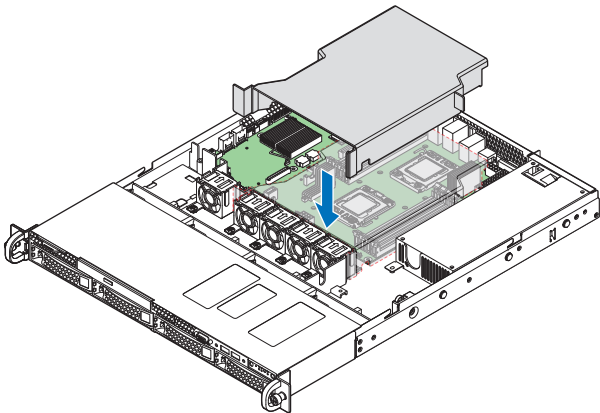
**IMPORTANT NOTE:** If you do not install a device at this location, install the optical device bay filler panel shown below. This is required to maintain proper system cooling.



## 10

### Install the Air Duct

Align the two holes on the air duct with the alignment pins on the chassis and install the air duct into place. Use care to avoid pinching system cables.

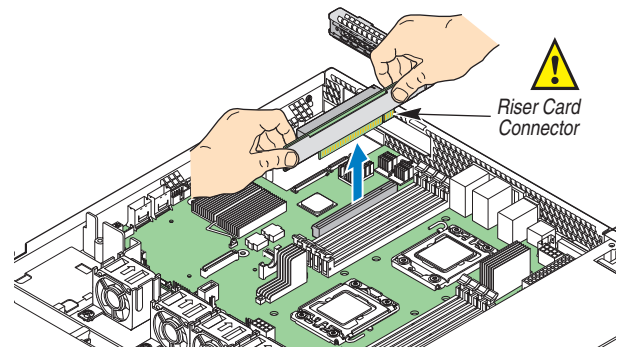


## 11

### Remove Add-in Card Riser Assembly

Grasp the riser assembly with both hands and pull up to remove from system.

**CAUTION:** Place the riser assembly upside down to avoid damage to the riser card connector.



## 12

### Install Add-in Card(s)

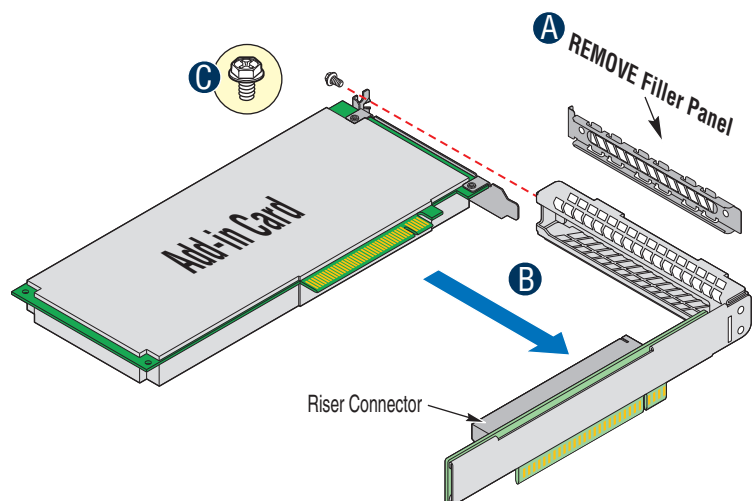
- Full-height PCIe Card Shown

**NOTE:** Add-in card install sequence for low-profile add-in cards is the same.

- A** Remove the filler panel from the add-in card slot and remove the screw as shown.  
**B** Insert add-in card until it seats in the riser connector.  
**C** Secure add-in card with screw as shown.

**NOTE:** Make sure that all empty add-in card slots have filler panels installed.

**CAUTION:** Observe normal ESD precautions when installing add-in cards.



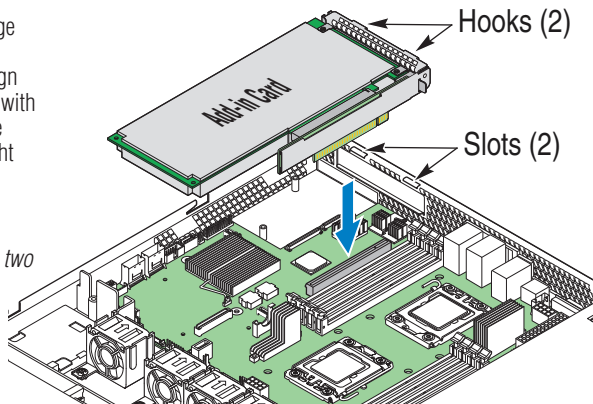
# General Installation Process

13

## Install Add-in Card Riser Assembly

Position the riser card edge connector over the server board riser socket and align the two hooks of the riser with the slots at the back of the chassis, then press straight down into riser socket.

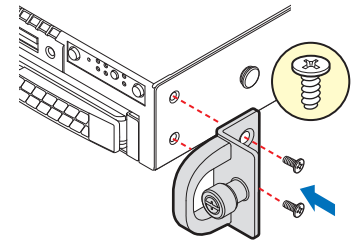
*NOTE: Riser Slot 2 is not functional without having two processors installed.*



14

## Install Rack Handles

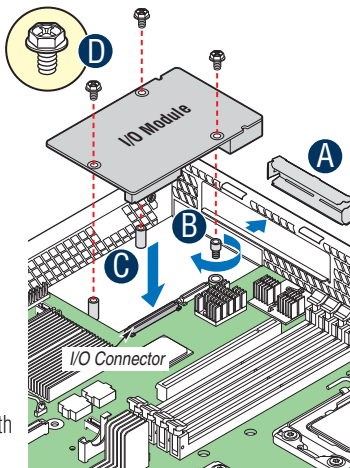
*NOTE: Rack handles are required to install the bezel. For detailed instructions, see the Service Guide.*



15a

## Install Intel® I/O Expansion Module (optional)

- A** Squeeze the sides of the filler panel to disengage it from the server system back panel and remove it.
- B** Position the module over the server board, fit the front of the module into the back panel slot.
- C** Attach the module to the server board connector.
- D** Secure the module with the three screws as shown.



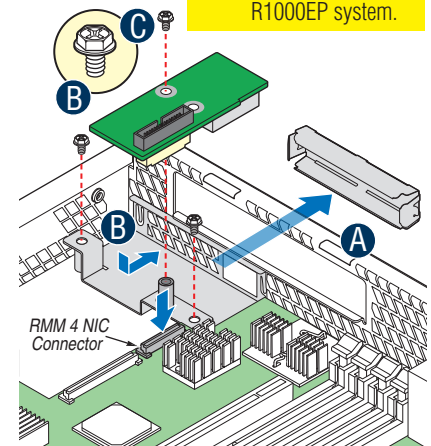
*NOTE: If included, remember to install the EMI shield.*

15b

## Install Intel® RMM4 NIC Module (optional)

- A** Push out and remove the metal cover on the chassis where the NIC RJ-45 receptacle will align.
- B** Insert and fit the metal adapter into the position shown below. Secure the adapter with two screws as shown.
- C** Position the module over the server board, fit the front of the module into the back panel slot, then attach the module to the server board connector. Secure the module with the two screws as shown.

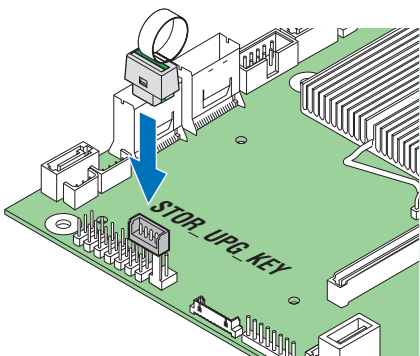
**CAUTION:** Intel® I/O Expansion module and RMM4 module are exclusive on Intel® R1000EP system.



16

## Install Intel® RAID C600 Upgrade Key (optional)

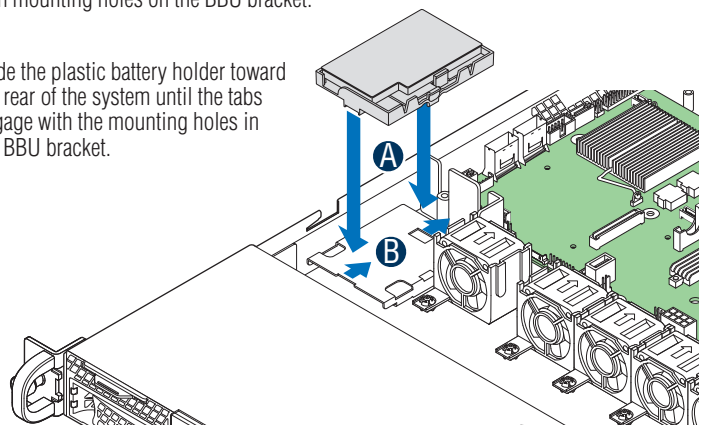
Locate the white 4-pin key header next to Riser Slot 1. Carefully pick up the Intel® RAID C600 Upgrade Key. Match the Key and connector orientation and press down to install.



17

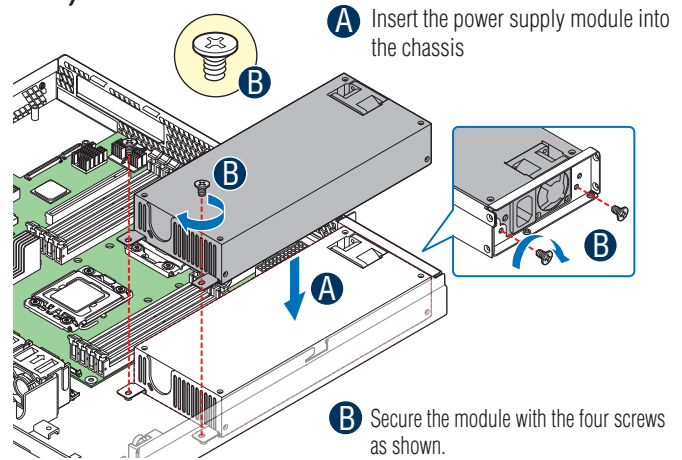
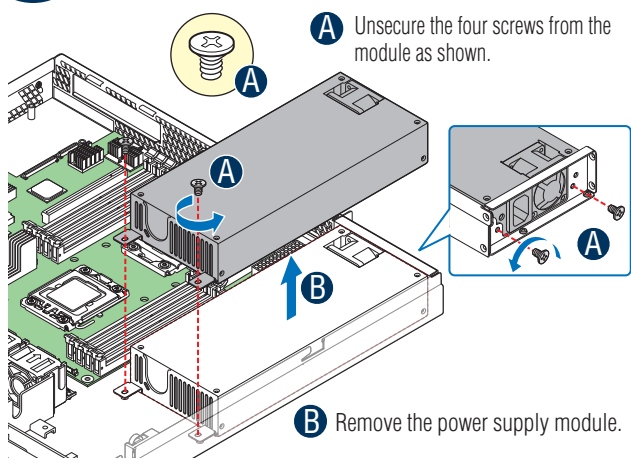
## Install Intel® RAID Smart Battery (optional)

- A** Locate the BBU bracket inside the chassis. Align the tabs on the plastic battery holder with mounting holes on the BBU bracket.
- B** Slide the plastic battery holder toward the rear of the system until the tabs engage with the mounting holes in the BBU bracket.



# General Installation Process

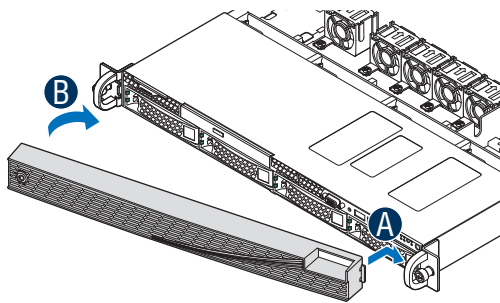
## 18 Replace Power Supply Module (optional)



## 19 Install Bezel (optional)

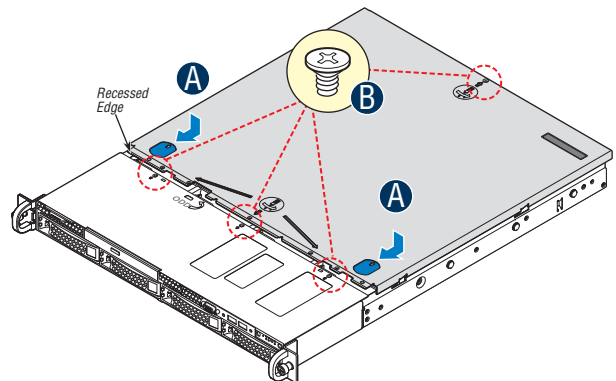
*NOTE: Before installing the bezel, you must install the rack handles.*

- A** Lock the right end of the front bezel to the rack handle.
- B** Rotate the front bezel clockwise till the left end clicks into place. Lock the bezel if needed.



## 20 Install the Top Cover

- A** Place the top cover on system and slide towards the front of the chassis until the recessed front edge is fully engaged.
- B** Install the three screws at the front and torque to 7-9in-lbs. Then install the screw at the back and torque to 7-9in-lbs.

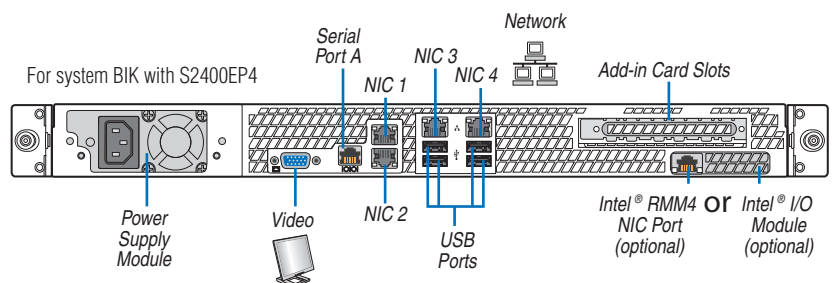
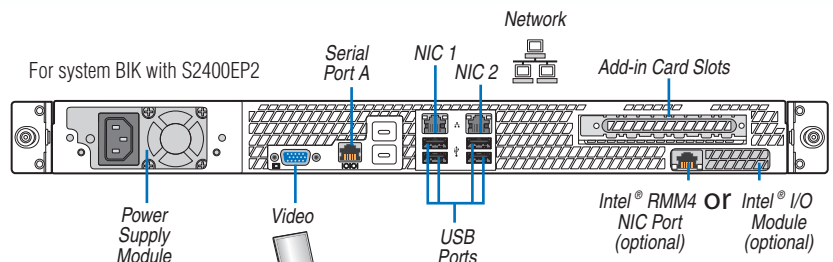


## 21 Finishing Up

Before installing your operating system, you must finish your system installation, make I/O connections, and plug in power cord(s).

1. Verify the system top cover is installed.
2. Install the server into the rack using the instructions provided with the rack mounting kit.
3. Connect your USB keyboard/mouse, video and other I/O cables/devices as shown. Then connect the power cord(s).

**CAUTION:** This system must be operated with the TOP COVER installed to ensure proper cooling.



# General Installation Process

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## Software • BIOS, Drivers, and Operating System Installation

### A. Update the System Software:

1. Boot from the Intel® Server Deployment & Management DVD.
2. Use the Wizard to access the latest versions on the Internet and update the BIOS, firmware, FRUSDRs, and Intel® RMM4.  
*NOTE: You may also download files on a USB key. The FRUSDR utility must be run for full platform management functionality.*

### B. Configure your RAID Controller:

If using a RAID card, use the instructions provided with the RAID controller. If using on-board RAID, you must activate RAID in the BIOS setup. See the *Intel® Server System R1000EP Service Guide* for more information.

### C. Install your Operating System:

Use the instructions provided with the RAID controller and with the operating system.

### D. Install Operating System Drivers:

With the operating system running, insert the Intel® Server Deployment & Management DVD. If using a Microsoft Windows\* operating system, the Express Installer will autorun and allow you to select the appropriate drivers to install. On other operating systems, browse the DVD folders to locate and install the driver files.

### E. Install Intel® System Management Software (optional):

Download the latest version of the Intel® System Management Software from <http://www.intel.com/go/servermanagement> and use the instructions provided at that link to install the software.

*\* Other brands and names may be claimed as the property of others..*

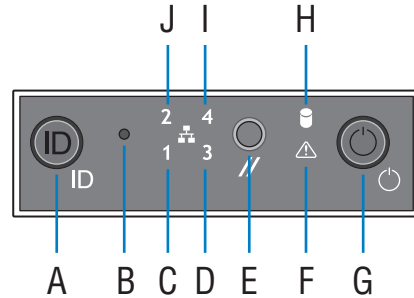
# Reference

## Front Panel Controls and Indicators

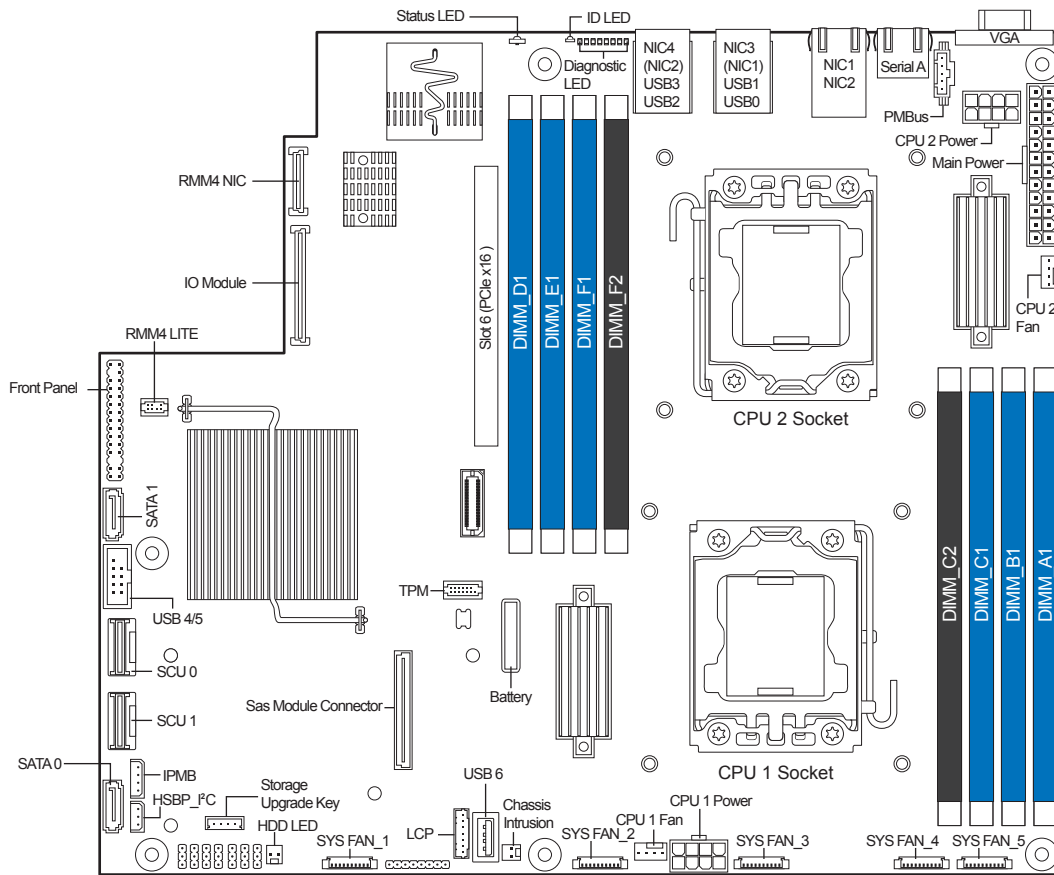
Your system may include one of two front control panel types. The features of each are as follows:

- A. ID Button with integrated LED
- B. NMI Button
- C. LAN-1 Activity LED
- D. LAN-3 Activity LED
- E. System Cold Reset Button
- F. System Status LED
- G. Power Button with integrated LED
- H. HDD Activity LED
- I. LAN-4 Activity LED
- J. LAN-2 Activity LED

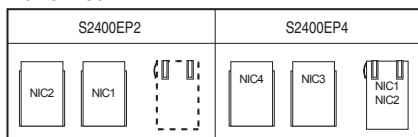
Standard Control Panel



## Intel® Server Board S2400EP Component Layout



NIC PORT SCHEME

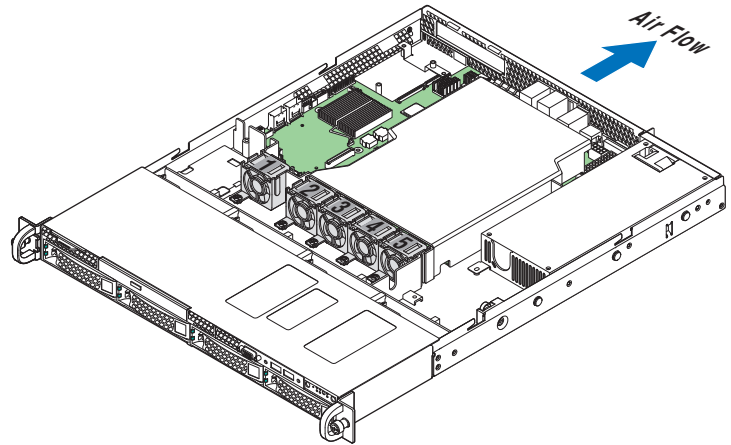
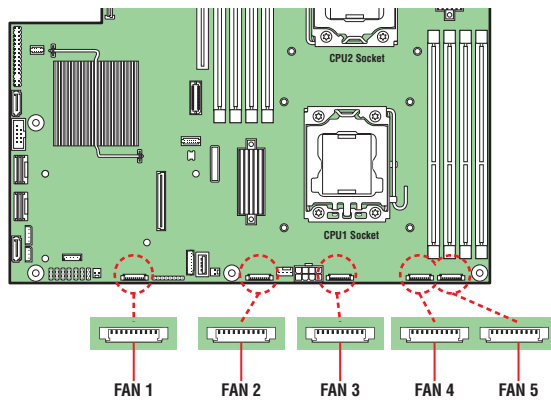


\* - For server systems integrated with Intel® Server Board S2400EP only.

See your *Intel® Server System R1000EP Service Guide* for expanded component and connection information.

# Reference

## System Fan Connection



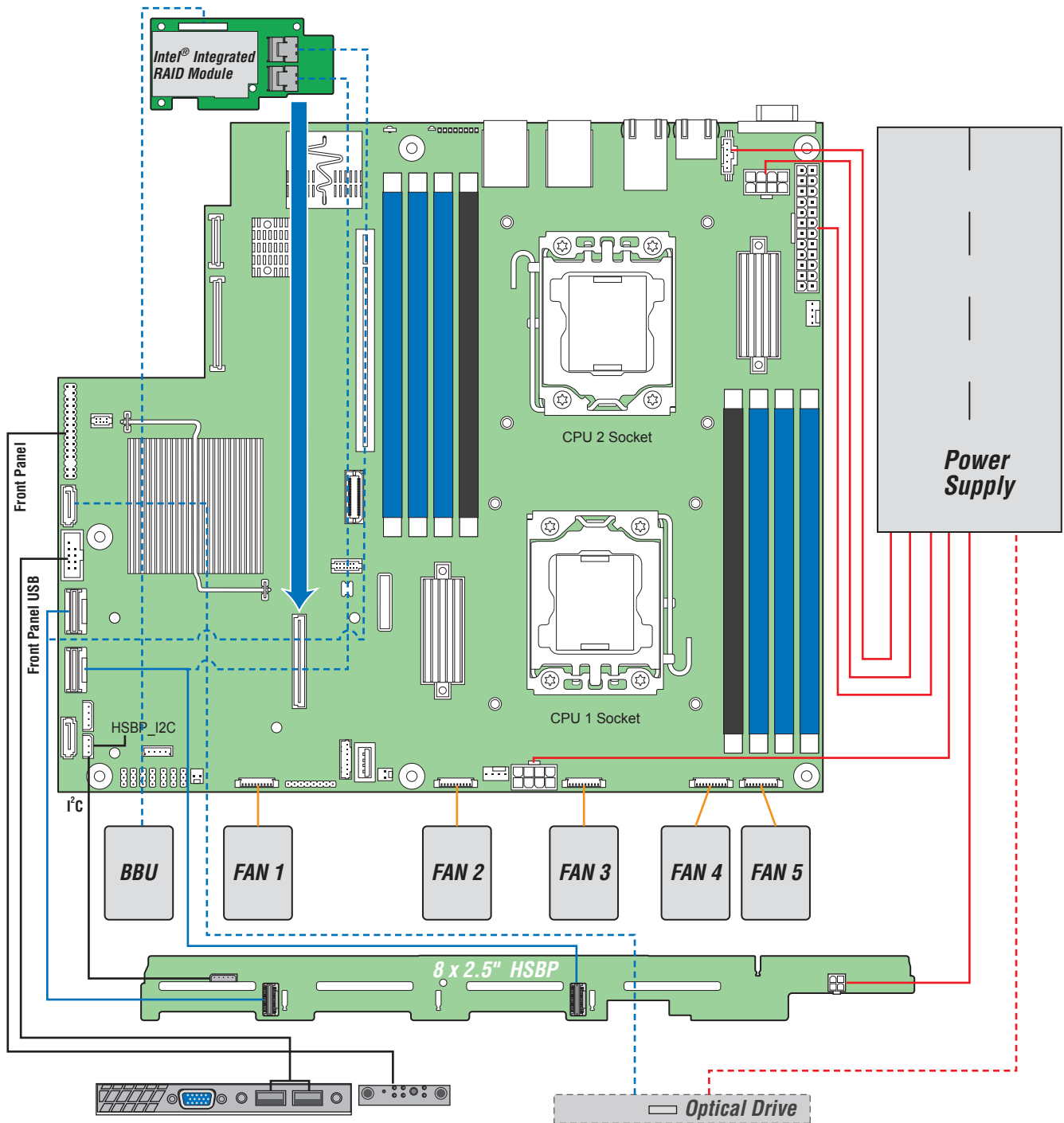
A complete list of accessories and spares can be found at <http://www.intel.com/support>.



# Reference

## System Cabling Diagram For system with 8 x 2.5" hard drive bay:

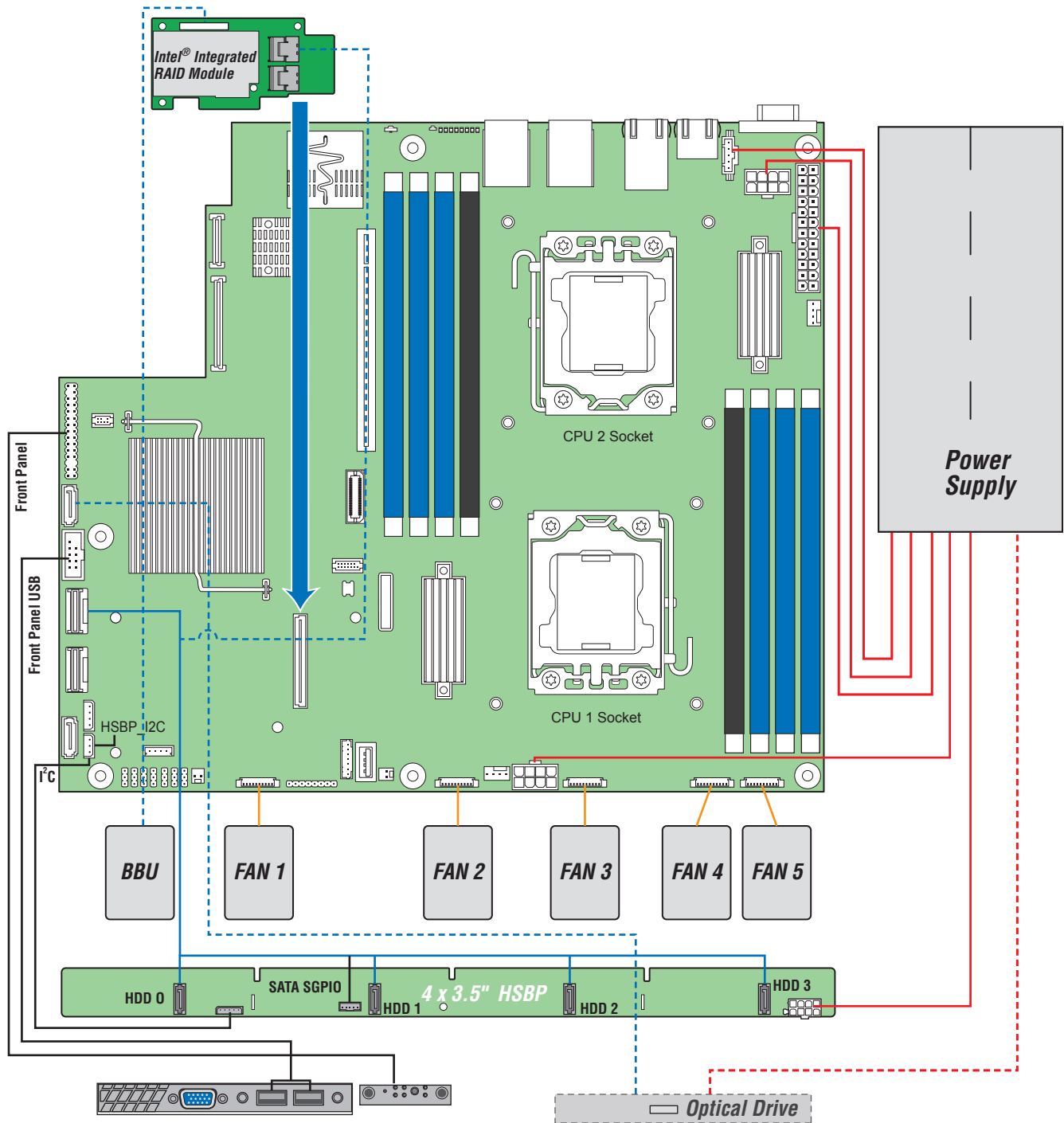
*NOTE: To activate the port SCU1 (4-7) on the server board, a proper Intel® RAID C600 Upgrade Key must be installed. For instructions, see Intel® RAID C600 Upgrade Key Installation Guide.*



# Reference

## System Cabling Diagram For system with 4 x 3.5" hard drive bay:

*NOTE: To activate the port SCU1 (4-7) on the server board, a proper Intel® RAID C600 Upgrade Key must be installed. For instructions, see Intel® RAID C600 Upgrade Key Installation Guide.*



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